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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/544,182
Filing Date: October 04, 2006
Appellant(s): HABIK ET AL.

Patrick M. Buechner
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 3/28/2011 appealing from the Office action mailed 9/27/2010.

(1) Real Party in Interest

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The following is a list of claims that are rejected and pending in the application:
Claims 1-4, 10-15 and 17-26 are pending. Claims 1-4, 11-15 and 17-26 are rejected. Claim 10 is objected to.

(4) Status of Amendments After Final

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

(5) Summary of Claimed Subject Matter

The examiner has no comment on the summary of claimed subject matter contained in the brief.

(6) Grounds of Rejection to be Reviewed on Appeal

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the

subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

(7) Claims Appendix

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

(8) Evidence Relied Upon

5,820,971	Kaule et al	10-1998
6,710.120	Gertzmann et al	3-2004
5,928,471	Howland et al	7-1999
6,715,750	Gerlier et al	4-2004
6,905,711	Tullo et al	6-2005
4,462,866	Tooth et al	7-1984
6,059,914	Suss	5-2000

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

1. Claims 1, 3, 4, 11, 13-15, 17, 21, 24 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaule et al (US 5920971) in view of Gertzmann et al (US 6710120).

Claims 1, 3, 4, 11 and 26: Kaule et al discloses a security paper such as a bank note, identity card, etc., comprising a flat substrate (reference #1, Fig. 1) provided at

least partly with a reaction adhesive layer or lower lacquer layer (4) contacting the substrate, a thin reflective metallized layer (3) and a UV-or chemically curable layer or upper lacquer layer of reaction lacquer (2). Adhesive layer (4) is largely chemically homogeneous with layer (2) (Abs; col 4, lines 17-38, Fig. 1). The adhesive can be a lacquer that cures by chemical action as opposed to UV radiation, thus a radiation curing component is not required or, at least a lacquer layer without a radiation curing component would have been obvious to one of ordinary skill in the art in such embodiments (col 3, lines 1-9 and 51-60; col 4, lines 35-38). The lower lacquer layer contacting the substrate is shown as a smooth, contiguous layer (Fig. 1) and, where present, will close the pores of the paper and prevent dirt from accumulating thereon or, at least, one of ordinary skill in the art would have found the closed pores and dirt repelling obvious. The upper lacquer layer is an irreversibly curable protective layer that resists physical and environmental (chemical) influences (col 4, lines 33-39; col 6, lines 1-3; col 6, line 58 to col 7, line 7, Fig. 8).

Kaule et al does not disclose the chemical composition or elastic properties of the lacquer layers.

Gertzmann et al discloses coating compositions for paper comprising, in some embodiments, hybrid aqueous dispersions of polyurethane, polymers comprising olefinically unsaturated monomers such as esters and/or amides of (meth)acrylic acid and alcohols having from 1-18 carbons, styrene, etc. and crosslinkers. Photoinitiators can also be added to the coating, but are not required, thus the compositions in some embodiments do not comprise radiation curable components (Abs; col 1, lines 6-9; col

2, lines 40-42; col 10, lines 46-67; col 11, lines 1-5 and 14-17). The applied coating compositions form films that are dried (reads on physically drying) and may be (but are not required to be) further irradiated with UV light (col 11, lines 31-42). One of ordinary skill in the art would not use UV light where photoinitiators are not added.

The coatings or layers thus comprise one or more of aliphatic polyester polyurethanes, styrene-acrylic polyurethanes, radiation curing UV-crosslinked layer, aliphatic urethane acrylates and acrylates with photoinitiators.

The art of Kaule et al, Gertzmann et al and the instant invention is analogous as pertaining to UV-curable coatings for paper. One of ordinary skill in the art, lacking guidance from Kaule et al as to the chemical composition of the chemically curable and UV-curable layers, would have turned to disclosures of known chemically curable and UV-curable coatings for paper for further guidance. It would have been obvious to one of ordinary skill in the art to use a the claimed lacquers to provide a physically drying, chemically curing adhesive layer and a chemically curing or UV-curing embossed layer that is largely homogeneous with the adhesive layer as an embodiment of Kaule et al in view of Gertzmann et al and have a reasonable expectation of success in obtaining a bank note paper having two lacquer layers that are largely chemically homogeneous with each other and that resist physical and environmental (chemical) influences.

Using chemically similar coatings for the lower and upper layers would assure chemical homogeneity between the layers. The coatings are substantially the same as the claimed coatings, and obtaining the claimed dirt-repellency, elasticity, chemical and physical protection would also have been obvious because, where the claimed and prior

art apparatus or product are identical or substantially identical in structure or composition, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). In other words, when the structure recited in the reference is substantially identical to that of the claims, the claimed properties or functions are presumed to be inherent or at least obvious.

Claims 13 and 15: Kaule et al discloses that, in some locations, the upper lacquer layer is in direct contact with the lower lacquer layer to form a largely inseparable compound (forms a highly resistant bond) (col 3, lines 9-18).

Regarding Claim 14, Kaule et al discloses that the metallized layer can additionally be provided with a protective layer that is chemically homogeneous with layer 2 (col 5, lines 5-8). The additional protective layer lies between the lower and upper layers.

Claim 17: The two lacquer layers and thin reflective layer contain an embossed hologram (col 2, lines 32-37; col 4, lines 22-26). Holograms have optical properties that vary with the viewing angle. At least the top lacquer layer is transparent and colorless in order for the hologram to be viewed or, at least, making the top layer transparent and colorless would have been obvious to one of ordinary skill in the art.

Claim 21: The substrate can be bank note paper that has been printed on and the lower lacquer layer is applied directly to the substrate (col 5, lines 13-16).

Claim 24: In some embodiments, the lacquer layers are applied all over the substrate (col 7, lines 13-16).

2. Claim 2 is rejected under 35 U.S.C. 103(a) as unpatentable over Kaule et al in view of Gertzmann et al and further in view of Howland et al (US 5928471).

The disclosures of Kaule et al and Gertzmann et al are used as above. Kaule et al and Gertzmann et al do not disclose cotton paper.

Howland et al teaches that cotton is the preferred fiber for bank notes (col 5, lines 34-43).

The art of Kaule et al, Gertzmann et al, Howland et al and the instant invention is analogous as pertaining to security paper used for bank notes. It would have been obvious to one of ordinary skill in the art to use cotton paper as the substrate of the paper of Kaule et al in view of Gertzmann et al and further in view of Howland et al as the preferred paper for bank notes.

3. Claims 12, 19 and 20 are rejected under 35 U.S.C. 103(a) as unpatentable over Kaule et al in view of Gertzmann et al and further in view of Gerlier et al (US 6715750).

The disclosures of Kaule et al and Gertzmann et al are used as above. Kaule et al and Gertzmann et al do not disclose adjusting the upper lacquer layer to obtain predetermined smoothness, sound and/or flexural stiffness.

Gerlier et al teaches that a problem in cut sheet dispensers such as automated teller machines is the accidental dispensing of multiple sheets. One mechanism by which the dispensers operate is by establishing a differential friction between an actuating mechanism and the first and subsequent sheets. A second mechanism

involves buckling the top sheet to remove it from the stack (col 1, lines 8-28). Thus, the frictional resistance between bank notes, which is in part due to the smoothness of the sheets, and the flexural stiffness of the bank notes are important features to control.

The art of Kaule et al, Gertzmann et al, Gerlier et al and the instant invention is analogous as pertaining to paper used for bank notes. It would have been obvious to one of ordinary skill in the art to control the composition of the lacquer coatings and their thickness to the claimed range to obtain a predetermined smoothness and flexibility in banknotes made from the paper of Kaule et al in view of Gertzmann et al and further in view of Gerlier et al to ensure accurate dispensing in automated machines.

4. Claim 18 is rejected under 35 U.S.C. 103(a) as unpatentable over Kaule et al in view of Gertzmann et al and further in view of Tullo et al (US 6905711).

The disclosures of Kaule et al and Gertzmann et al are used as above. Kaule et al and Gertzmann et al do not disclose that the upper layer has an antibacterial fungus proofing.

Tullo et al discloses coating antimicrobial solutions on paper, such as mail, financial instruments and currency, which might be used by a terrorist to spread disease (Abs; col 1, lines 10-15; col 7, lines 60-67).

The art of Kaule et al, Gertzmann et al, Tullo et al and the instant invention is analogous as pertaining to coatings used to protect paper. It would have been obvious to one of ordinary skill in the art to provide an antibacterial fungus proofing on the upper

lacquer layer of the paper of Kaule et al in view of Gertzmann et al and further in view of Tullo et al to protect users of the paper from disease.

5. Claim 25 is rejected under 35 U.S.C. 103(a) as unpatentable over Kaule et al in view of Gertzmann et al and further in view of Tooth et al (US 4462866).

The disclosures of Kaule et al and Gertzmann et al are used as above. Kaule et al and Gertzmann et al do not disclose a lacquer layer on both sides of the paper.

Tooth et al discloses a security paper that can be used to make bank notes (Abs; col 3, lines 62-64). The document contains a security element, which may lie in a watermark, thus providing multiple security elements (col 3, lines 6-24). The paper can comprise an overlay in the form of a film that can cover the security element or can extend over the whole of one or more surfaces of the sheet. The overlay can be applied as a liquid which is physically dried and/or cured to form a film (col 3, lines 37-61). The overlay prevents the embedded elongate security element from becoming detached and, when extending over the whole sheet, provides protection for the sheet or, at least, such protection would have been obvious to one of ordinary skill in the art.

The art of Kaule et al, Gertzmann et al, Tooth et al and the instant invention is analogous as pertaining to coatings used to protect paper. It would have been obvious to one of ordinary skill in the art to apply a lacquer over both surfaces of the paper of Kaule et al in view of Gertzmann et al and further in view of Tooth et al to protect the entire paper.

6. Claims 22 and 23 are rejected under 35 U.S.C. 103(a) as unpatentable over Kaule et al in view of Gertzmann et al and further in view of Suss (US 6059914) and even further in view of Tooth et al.

The disclosures of Kaule et al and Gertzmann et al are used as above. Kaule et al and Gertzmann et al do not disclose a gap in the lacquer layer or an additional security element therein. Kaule et al does disclose applying a hologram by transferring it from a carrier material (col 2, lines 38-41; col 3, lines 19-29).

Suss discloses a method of transferring a hologram to a paper by producing a stamping foil having a decorative layer (i.e.-a hologram) provided on a carrier film only in a region-wise manner corresponding to the desired patterning of the substrate (Abs; col 2, lines 44-63). Multiple discrete hologram elements can be applied to a substrate (col 3, lines 7-11; col 7, lines 49-59, Fig. 3).

Suss does not disclose security elements between the hologram elements forming the pattern.

The disclosure of Tooth et al is used as above.

The art of Kaule et al, Gertzmann et al, Suss, Tooth et al and the instant invention is analogous as pertaining to security elements used in paper. It is well known in the art (such as in the paper of Tooth et al) to incorporate multiple security elements in security papers to make forgery difficult. It would have been obvious to one of ordinary skill in the art to apply multiple discrete hologram elements (thus causing gaps between the lacquer layers where the elements are located) to the paper of Kaule et al in view of Gertzmann et al and further in view of Suss and even further in view of Tooth

et al to make forgery of the paper more difficult. It would further have been obvious to incorporate the holograms in a watermark, which forms an additional security element in the gaps, to further hinder duplication of the paper.

(10) Response to Argument

Appellant argues (pp 15-17) that the "physically drying" lower lacquer layer as recited in Claim 1 must be interpreted as a layer that only dries by physical mechanisms, and not a *hybrid* lacquer layer which may dry by both physical mechanisms and chemical mechanisms. Appellant further argues (p 16) that a "physically drying" lacquer layer does not include any radiation-curing or chemically-curing components, and that a lower lacquer layer having radiation-curing components is in direct contrast with a reasonable reading of the specification as would be understood by a person having ordinary skill in the art.

As support for the argued interpretation, Appellant cites paragraphs 11-13 of the specification and claim 1, which recognizes the distinction between "physically drying" lacquer layers and hybrid lacquer layers that include physically drying components and a radiation-curing component. Also cited is an excerpt from the "Handbook of Print Media", included in the remarks made in an after-final amendment submitted 12/27/2010 and which was entered into the record.

Paragraph 11 discusses closing depressions, uneven layers and pores of substrates with a physically drying lacquer layer so that the advantageous properties of radiation-curing lacquers can be used. Paragraph 11 also teaches that, depending on

the substrate quality, the radiated power, the initiator system and the monomer system, radiation-curing lacquers and in particular UV-drying lacquers may have a disadvantage due to residual monomers and free photoinitiators remaining in depressions and pores of the substrate after curing.

Paragraph 12 adds that the problem occurs increasingly when the UV lacquer penetrates into a paper fiber composite and complete polymerization of the UV lacquer is no longer possible. Paragraph 12 also teaches that the positive properties of UV lacquering can be fully exploited by using a lower lacquer layer that contacts the substrate and closes its pores and an upper lacquer layer that protects the substrate from physical and chemical influences.

Paragraph 13 discusses that the cotton paper of security and value documents has high porosity and surface roughness where residual monomers and photoinitiators of the radiation-curing layer would be deposited without the inventive lower layer.

The cited paragraphs 11-13 teach one of ordinary skill in the art desiring to practice the invention using radiation-curable lacquers that the substrate quality, the radiated power, the initiator system and the monomer system are result effective variables that may be optimized to control the amount of residual monomers and free photoinitiators remaining in depressions and pores of the substrate after curing, not that the lower layer must only dry by physical mechanisms and cannot include a radiation-curing or chemically-curing component and cannot be cured in addition to being physically dried. In addition, the problems indicated in paragraphs 11-13 occur with radiation-curing lacquers. As discussed in the outstanding rejections, photoinitiators

and radiation curing are not required in the coating compositions of Gertzmann et al, which are physically dried and then can be chemically cured.

The excerpt from the "Handbook of Print Media" discusses different methods of drying printing ink, including physical processes, chemical reaction and combinations of both. Even if the description of the methods is applicable to non-ink technologies such as coating compositions, the discussion does not define the claimed "physically drying liquid lacquer layer" and does not prohibit such layer from also being cured as well as physically dried.

In claim 1, the description of the second upper layer, which is formed from a radiation-curing UV-crosslinked layer, a physically-drying layer or a hybrid lacquer layer containing both physically drying components and a radiation-curing lacquer component, fails to define a "physically drying liquid lacquer layer" or prohibit such layer from also being cured as well as physically dried.

The term "physically drying liquid lacquer layer" is not defined in the specification, and the interpretation of the term as used in the rejections is maintained.

The arguments against the art rejections (pp 17-22) focus on independent claim 1, with claims 2-4, 11-15 and 17-26 standing or falling with claim 1.

Appellant recognizes that Kaule et al discloses the use of UV-curable and chemically curable coating compositions (pp 18-20) and argues that the reference fails to disclose a physically drying liquid lacquer layer. Appellant also argues that a physically drying layer as recited in claim 1 will not cure (will not polymerize or crosslink)

and will not be largely homogeneous chemically with a layer that cures under specific physical or chemical activation, as required by Kaule et al.

Appellant argues (pp 20-21) that Gertzmann et al discloses compositions containing crosslinkers and that all of the disclosed compositions include some form of curing under specific physical or chemical activation. Appellant further argues that, while Gertzmann et al may teach that the coating may be dried at room or elevated temperature, the curing is a chemical drying process and not a physical drying process.

The statement that a physically drying layer will not cure is incorrect. As recognized by Appellant, the coatings of Gertzmann et al are first physically dried, thus are physically drying lacquers, and then cured, such as by chemical curing (e.g.-oxidative crosslinking) or optionally by radiation curing.

Appellant argues (p 21) that interpreting a hybrid composition that includes physical drying followed by some form of curing reads on a physically drying layer is inconsistent with the specification and with the understanding of a person having ordinary skill in the art. The interpretation of "physically drying" lacquer layer has been discussed above.

Appellant argues that using any type of curing lacquer layer as the lower lacquer layer recited in claim 1 would defeat the purpose of using a physically drying lower lacquer layer to prevent migration of uncured reactive components into the pores of the substrate. As discussed above, the cited paragraphs in the specification discuss disadvantages of radiation-curing lacquers. The compositions of Gertzmann are not required to include photoinitiators or cure by radiation.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Dennis Cordray/

Examiner, Art Unit 1741

Conferees:

Matthew Daniels

/Matthew J. Daniels/

Supervisory Patent Examiner, Art Unit 1741

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